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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,272	02/27/2004	Elaine W. Jin	86387SHS	9378

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EXAMINER

LEE, JOHN W

ART UNIT	PAPER NUMBER
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2624

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/789,272	Applicant(s) JIN ET AL.	
	Examiner JOHN Wahnkyo LEE	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 3-6,8,14,17,18,21,24-34,37-40,44-53 and 55 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 7, 9-13, 15-16, 19-20, 22-23, 35-36, 41-43, 54 and 56-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Claims 1-2, 7, 9-13, 15-16, 19-20, 22-23, 35-36, 41-43, 54 and 56-61 are pending; claims 1, 35, 43 and 54 amended; claims 58-61 are added; claims 24-34 and 44-52 are withdrawn; claims 3-6, 8, 14, 17-18, 21, 37-40, 53 and 55 are canceled.

Response to Amendment/Arguments

1. Applicant's amendment and arguments filed on 20 October 2010 have been fully considered.
2. Applicant's arguments with respect to claims 1-3, 7, 9-13, 15-16, 19-20, 22-23, 35-36, 41-43, 53-54 and 56-57 have been considered, but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 7, 9-13, 15-16, 19-20, 22-23, 35-36, 41-43, 54 and 56-58 and 60-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woods et al. ("Image Distortion in Stereoscopic Video System") in view of Dhond et al. ("Stereo Matching in the Presence of Narrow Occluding Objects Using Dynamic Disparity Search").

Regarding claim 1, Woods discloses a method for producing a pair of stereo images customized for an individual user from an input stereoscopic image, comprising the steps of: a) obtaining customization information including a stereoscopic image (page 2; section 1.2, "V-viewing Distance" , "e- Eye Separation"); e) using a processor to produce the customized pair of stereo images for subsequent display by using the customized disparity map or the customized rendering conditions for the three-dimensional (3D) computer graphic model (page 1, section 1 and page 10, section 3.1.1) and f) displaying the customized pair of stereo images on a stereoscopic display device (page 1, section 1 and page 10, section 3.1.1). However, Woods does not disclose all the claim limitations. Instead of Woods, Dhond discloses disparity range for the individual user, wherein the stereoscopic disparity range for the individual user is the range of disparities in a stereoscopic image that the individual user can comfortably fuse, and corresponds to a range of apparent depths in the stereoscopic image that the individual user can comfortably view (page 721, section A, "[min_disp, max_disp]"); b) obtaining a scene disparity map for the input stereoscopic image, wherein the input stereoscopic image includes at least one of a given pair of stereo images or a three-dimensional (3D) computer graphic model (page 721, section A, "BG and FG"); c) determining an aim disparity range for a customized pair of stereo image responsive to the stereoscopic image disparity range for the individual user and the obtained scene disparity map (page 721, section A, "[min_disp, max_disp]"); d) at least one of generating a customized disparity map responsive to the aim disparity range for the individual user or generating customized rendering conditions for a three-dimensional

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(3D) computer graphic model responsive to the aim disparity range for the individual user (page 721, section F, "dcomp (i, j)").

Adding the dynamic disparity search-based algorithm taught by Dhond to Woods's Stereoscopic Video System does no more to Wood's system than it would do if it were added to any other system. The function remains the same. Predictably, the dynamic disparity search-based algorithm adds greater reliability and efficiency to the Stereoscopic video detection.

Thus, one of ordinary skill in the art would have been motivated to update Wood's Stereoscopic Video System with the dynamic disparity search-based algorithm taught by Dhond, and thereby gaining, predictably, the commonly understood benefits of such adaptation, that is a reliable and efficient disparity search algorithm for the stereoscopic video detection.

Regarding claim 7, Woods further discloses wherein the step of determining the scene disparity map includes obtaining a scene convergence point and depth information being obtained from the 3D computer graphics model (Figure 7; page 8, section 2.1).

Regarding claim 9, Dhond further discloses wherein the step of generating a customized disparity map further including applying a predetermined mapping function to modify the scene disparity map (page 721, section A).

Regarding claim 10, Dhond further discloses wherein the predetermined mapping function being dependent on a region of interest (page 721, section A, "BG and FG").

Regarding claim 11, Dhond further discloses wherein the region of interest being dynamic (page 721, section A, “DHL”).

Regarding claim 12, Woods further discloses wherein the step of determining the aim disparity map being further responsive to skill of the user within a stereoscopic viewing environment (page 2; section 1.2).

Regarding claim 13, Woods further discloses wherein the step of determining the aim disparity map being further responsive to a type of task that the user will perform in a stereoscopic viewing environment (page 2; section 1.2).

Regarding claim 15, Woods further discloses wherein the step of generating the customized disparity map being accomplished by applying a linear transformation to the scene disparity map (page 8; section 2.2).

Regarding claim 16, Woods further discloses wherein the step of generating the customized disparity map being accomplished by applying a non-linear transformation to the scene disparity map (page 8; section 2.2).

Regarding claim 19, Dhond further discloses wherein the region of interest being based upon a measurement of fixation position (Fig. 3; chapter IV-C).

Regarding claim 20, Dhond further discloses wherein the region of interest being based upon a map of probable fixations (Fig. 3; chapter IV-C).

Regarding claim 22, Woods further discloses wherein the step of generating rendering conditions for a three-dimensional (3D) computer graphic model including computing a location, an orientation, a focal distance, a magnification and a depth of

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field correlating to a pair of simulated cameras (Figs. 1-3; equations (1)-(14); chapters 1-1.2 and 1.3; pages 2-5).

Regarding claim 23, Woods further discloses wherein the customized rendering conditions are generated by modifying one or more of a set of correlating camera parameters including camera location, orientation, focal distance, magnification or depth of field (Figs. 1-3; equations (1)-(14); chapters 1-1.2 and 1.3; pages 2-5).

Regarding claim 35, claim 35 is analogous to claim 1. See rejection of claim 1 for further explanation.

Regarding claim 36, Woods further discloses wherein the stereoscopic image disparity range for the user being determined using at least one of a capability of the user to converge the user's eyes, a capability of the user to diverge the user's eyes, a user's phoria, a user's capability of accommodation, a user's range of fusion, and a rendering intent of the image (Figure 1(a) and 1(b); page 2, section 1.1, "(a) the viewing distance of the observer from the display" and "(c) the distance between the viewer's eyes").

Regarding claim 41, claim 41 is analogous and corresponds to claim 1. See rejection of claim 1 for further explanation.

Regarding claim 43, claim 43 is analogous and corresponds to claim 1. See rejection of claim 1 for further explanation.

Regarding claim 54, claim 54 is analogous and corresponds to claim 1. See rejection of claim 1 for further explanation.

Regarding claim 56, Wood further discloses comprising: a sensor communicatively linked to the rendering processor for providing sensory data about the user to the rendering processor (Page 1, Chapter 1.1, “camera system”).

Regarding claim 57, Woods further discloses wherein the sensory data includes head positioning, accommodative at least one of a state of the user's eye and a direction of eye gaze of the user (page 2, Chapter 1.1; Figure 1, “viewer's eye”).

Regarding claim 58, Woods further discloses wherein the stereoscopic disparity range is characterized by a user-specific crossed disparity upper limit and a user-specific uncrossed disparity upper limit, and wherein the crossed disparity upper limit corresponds to the image disparity for the closest apparent object distance that can be comfortably viewed by the individual user in a stereoscopic image viewed on the stereoscopic display device, and the user-specific uncrossed disparity upper limit corresponds to the image disparity for the farthest apparent object distance that can be comfortably viewed by the individual user in a stereoscopic image viewed on the stereoscopic display device (page 721, section A, “[min_disp, max_disp]”).

Regarding claim 60, claim 60 is analogous and corresponds to claim 1. See rejection of claim 1 for further explanation.

Regarding claim 61, Wood further discloses wherein the individual user is associated with one of the plurality of user categories by characterizing the individual user's perceptual characteristics for stereoscopic viewing and determining the user category that most closely matches the user's perceptual characteristics for stereoscopic viewing (page 721, section A, “[min_disp, max_disp]”).

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5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woods et al. ("Image Distortion in Stereoscopic Video System") in view of Dhond et al. ("Stereo Matching in the Presence of Narrow Occluding Objects Using Dynamic Disparity Search"), and further in view of Zhang (US 2003/0197779).

Regarding claim 2, Woods and Dhond disclose all the previous limitations except the one specified in claim 2. However, Zhang further discloses wherein the customization information includes at least one of a user profile or a rendering intent subject to a predetermined task choice or skill level (Fig. 3-307; paragraph [0034], "personalize three dimensional model of the conferee stored in a database").

Adding the steps of using the information of the personalize three dimensional model of the conferee stored in a database disclose by Zhang to the combination of Woods and Dhond does no more to the combination than it would do if it were added to any other system. The function remains the same. Predictably, using the personalize three dimensional model of the conferee stored will add reliability and robustness to the combination.

Thus, it would have been obvious to one of ordinary skill in the art to apply using the information of the personalize three dimensional model of the conferee stored in a database disclose by Zhang to the combination of Woods and Dhond, to improve the combination for predictable results of enhancing the reliability and robustness.

Allowable Subject Matter

6. Claim 42 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. Claims 59 is allowed.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN Wahnkyo LEE whose telephone number is (571)272-9554. The examiner can normally be reached on Monday - Friday (Alt.) 7:30 a.m. - 5:00 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on (571) 272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John Wahnkyo Lee/
Examiner, Art Unit 2624

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/Brian Q Le/

Primary Examiner, Art Unit 2624